Nº 12,325 A.D. 1898

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Complete Specification Left, 1st Mar., 1899—Accepted, 27th May, 1899

PROVISIONAL SPECIFICATION.

Improvements in Apparatus Employed in Wireless Telegraphy.

We, GUGLIELMO MARCONI, Electrician, and THE WIRELESS TELEGRAPH AND SIGNAL CO. LD., both of 28, Mark Lane, in the City of London, do hereby declare the nature of this invention to be as follows:—

In the Specification of a former Patent granted to me No. 12039 of 1896 I described an arrangement in which the transmitter consisted of a sparking appliance having one terminal connected to an insulated conductor in the air and the other terminal to earth, whilst the receiver contained a sensitive tube or sensitive imperfect contact, having one end connected to a similar conductor and the other end to earth.

When both instruments are employed at the same station it is found that the sensitive tube or sensitive imperfect contact is liable to injury by its close proximity to the sparking appliance.

In order to obviate this objection I enclose the receiver, containing the sensitive tube or sensitive imperfect contact, in a box of thick metal having only a small opening into it, and I employ the same conductor and earth plate for both instruments.

The earth plate is permanently connected to one terminal of the sparking appliance and to the outside of the box. The insulated conductor can be connected by a plug either to the other terminal of the sparking appliance or to the other end of the imperfect contact.

Where a recording instrument is employed this cannot conveniently be placed inside the box and in order to prevent the wires connecting it to the relay of the receiver from leading injurious oscillations to the sensitive tube I adopt the following arrangement:—one terminal of the relay circuit is connected to the inside of the box and one terminal of the recording instrument to the outside.

The ends of the wires from the other terminals of the relay circuit and recording instrument are connected to the ends of a coil formed from an insulated wire covered with tin foil. This coil is outside the box and the tin foil is in electrical communication with it.

Dated this 31st day of May 1898.

G. MARCONI.
THE WIRELESS TELEGRAPH AND
SIGNAL COMPANY LIMITED.
G. MARCONI, } Directors.
H. JAMESON DAVIES, }
HENRY W. ALLEN,
Secretary.

[*Price 8d.*]

COMPLETE SPECIFICATION.

Improvements in Apparatus Employed in Wireless Telegraphy.

We, Guglielmo Marconi, Electrician, and The Wireless Telegraph and Signal Company Limited, both of 28, Mark Lane, in the City of London, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

In the Specification of a former Patent No. 12039 of 1896 an arrangement is described in which the transmitter consisted of a sparking appliance having one terminal connected to an insulated conductor in the air and the other terminal to earth, whilst the receiver contained a sensitive tube or sensitive imperfect contact, having one end connected to a similar conductor and the other end to earth.

When both instruments are employed at the same station it is found that the sensitive tube or sensitive imperfect contact is liable to injury by its close proximity to the sparking appliance.

In order to obviate this objection we enclose the receiver, containing the sensitive tube or sensitive imperfect contact, in a box of metal having only a small opening into it, and employ the same conductor and earth plate for both instruments.

The earth plate is permanently connected to one terminal of the sparking appliance and to the outside of the box. The insulated conductor can be connected by a plug either to the other terminal of the sparking appliance or to the other end of the imperfect contact.

Where a recording instrument is employed this cannot conveniently be placed inside the box and in order to prevent the wires connecting it to the relay of the receiver from leading injurious oscillations to the sensitive tube we adopt the following arrangement:—one terminal of the relay circuit is connected to the inside of the box and one terminal of the recording instrument to the outside.

The ends of the wires from the other terminals of the relay circuit and recording instrument are connected to the ends of a coil formed from an insulated wire covered with tin foil or other conducting material. This coil is outside the box and the tin foil is in electrical communication with it.

Figure 1 is a diagram of a combined transmitting and receiving station arranged in accordance with this invention. Figure 2 shows the wire of which the coil B is made.

The letters so far as they are applicable are the same as those employed in the former specification.

a is a battery and *b* an ordinary Morse key closing the circuit through the primary of a Rhumkorff coil *c* the terminals of the secondary being connected to metallic balls *e*. *g* is a battery and *h* a telegraphic instrument on the derived circuit of a relay *n*. *j* is a glass tube containing metallic powder. k^1 are choking coils in the circuit through the tube. *p* is a trembler on the relay circuit for tapping the tube. *q* is a resistance coil. *r* is a battery in the relay circuit. p^1 is a resistance inserted in derivation across the terminals of the trembler *p* and p^2 is a resistance in a circuit connecting the vibrating contacts of the trembler. *s* is a resistance across the terminals of the relay circuit. *u* is an aerial conductor. These arrangements are now well known and are fully described in the former specification.

According to our present invention we enclose the receiver in a metallic box A. About $^1/_{20}$th of an inch is a suitable thickness for the metal.

The inside of the box is connected by a wire A^1 to the relay circuit and its outside by wires A^2 A^3 to one terminal of the telegraphic instrument *h* and earth E respectively.

The other branch of the relay circuit is connected by a wire A^4 insulated from the box to the other terminal of the instrument *h*. B is a coil on the wire A^4 and outside the box. It is protected from mechanical injury by a metal case C but this may be omitted. The coil B may contain about 20 yards of wire $^1/_{75}$th of an inch in diameter and have 120 turns.

The wire is insulated with gutta percha D which is covered with a metallic conductor F as shown in Figure 2. We use tin foil for convenience. The tin foil is in electric connection with the box. The aerial conductor *u* can be connected by a flexible conductor G, plug G^1 and spring contacts H and H^1 either to one of the balls *e* for transmitting or to one end of the tube *j* for receiving. The other end of the tube *j* is connected by a wire J to the inside of the box.

The aerial conductor need not be insulated as shown but may be connected to earth through the primary of an induction coil the ends of the secondary of which are connected to the ends of the sensitive tube.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. The combination of a transmitter, a receiver, an aerial conductor, a metallic box containing the receiver, earth connections to one terminal of the transmitter and to the box, an interchangeable connection from the aerial conductor either to the other terminal of the transmitter or to one terminal of the receiver and a connection between the other terminal of the receiver and the box.

2. The combination of a transmitter, a receiver, an aerial conductor, a metallic box containing the receiver, earth connections to one terminal of the transmitter and to the box, an interchangeable connection from the aerial conductor either to the other terminal of the transmitter or to one terminal of the receiver, a connection between the other terminal of the receiver and the box, a relay operated by the receiver, a telegraph instrument outside the box, a connection between the box and one terminal of the relay, a connection between the box and one terminal of the telegraph instrument and a connection insulated from the box between the other terminals of the relay and telegraph instrument.

3. The combination of a transmitter, a receiver, an aerial conductor, a metallic box containing the receiver, earth connections to one terminal of the transmitter and to the box, an interchangeable connection from the aerial conductor either to the other terminal of the transmitter or to one terminal of the receiver, a connection between the other terminal of the receiver and the box, a relay operated by the receiver, a telegraph instrument outside the box, a connection between the box and one terminal of the relay, a connection between the box and one terminal of the telegraph instrument, a connection insulated from the box between the other terminals of the relay and telegraph instrument, a coil of insulated wire (preferably) outside the box in the latter connection and a metallic covering to the insulation in connection with the box.

4. Apparatus for wireless telegraphy substantially as described and illustrated in the drawings.

Dated this 28th day of February 1899.

CARPMAEL & Co.,
Agents for the Applicants.

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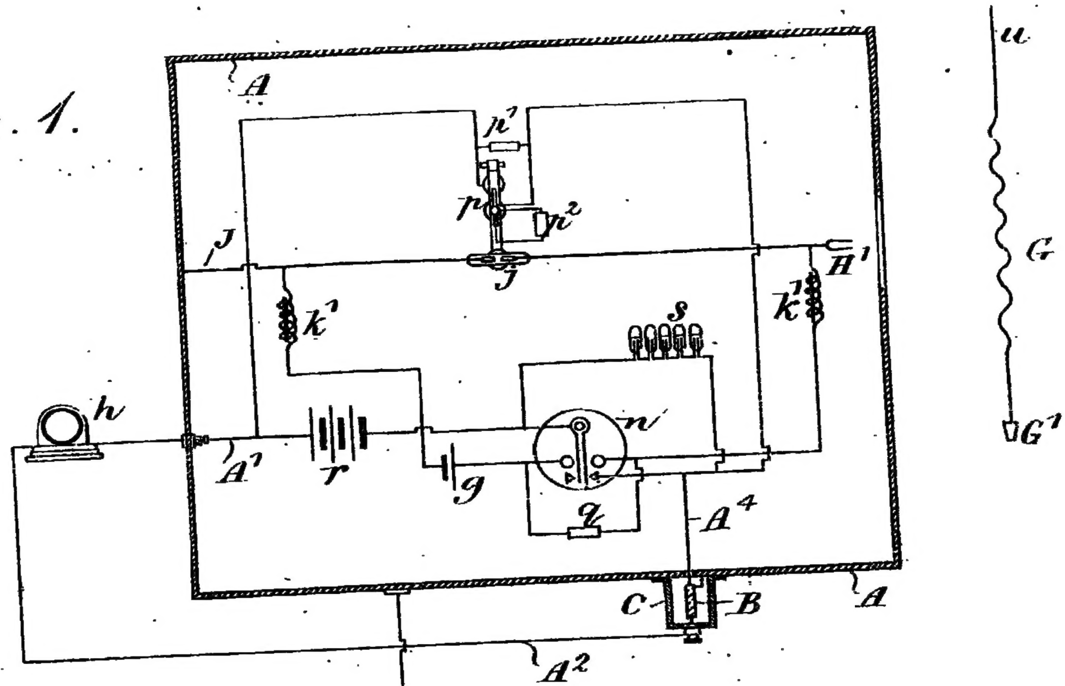
A.D. 1898 June 1 N° 12,325 (1 SHEET)

MARCONI & another's Complete Specification.

Fig. 1.



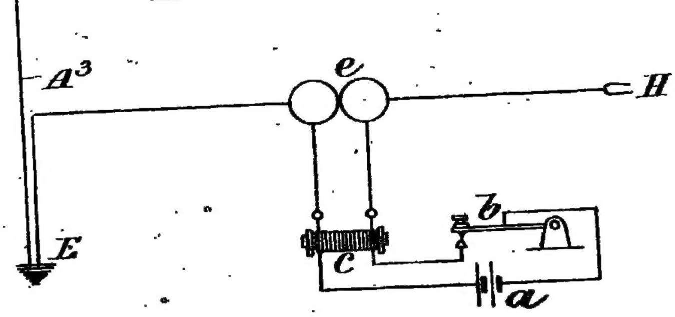
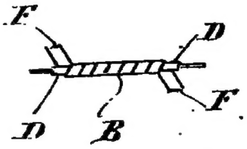


Fig. 2.



[This Drawing is a reproduction of the Original on a reduced scale]

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